

WINTER CONFERENCE ON BRAIN RESEARCH

PROPOSAL FOR PROGRAM

Read instructions carefully before completing this form. DO NOT FOLD ABSTRACT.

Title: Brain Nicotinic Receptor Mediation of Tolerance and Dependence

Format: Panel_____ Workshop_____ Specialized Panel ☒ Poster_____

SUPPLEMENTARY INFORMATION

This panel will bridge the complexity of nicotine's action in brain from the multiplicity of receptor subunits and binding sites to the mechanisms of tolerance development. Dr. Abood will discuss purification and molecular characterization of brain nicotine receptors. Dr. Kellar will describe the distribution of nicotine receptors in brain and changes in nicotine binding during chronic administration of nicotine. Further, he will correlate these changes with the functional neuroendocrine responses to chronic versus acute administration of nicotine. Dr. Henningfield will describe clinical studies of nicotine-induced development of tolerance and physical dependence. Specifically, he will discuss dose-response relationships and behavioral and physiological response measures. Dr. Van Loon will discuss the effect of nicotine on several brain enkephalin systems and the potential interactions between nicotinic receptors and enkephalin neurons in mediating the effects of nicotine.

Although this topic has far reaching ramifications, it will be presented in considerable depth, thus making it perhaps more suitable for a Specialized Panel than a Panel.

ORGANIZER & INSTITUTION	WCBR eligible?
Name Glen R. Van Loon	Yes
VAMC, Lexington and University of Kentucky	

PARTICIPANTS & INSTITUTIONS		
Name	Leo Abood	Yes
	Center for Brain Research	
	University of Rochester	
Name	Kenneth Kellar	Yes
	Georgetown University	
Name	Jack Henningfield	No
	Natl. Inst. for Drug Abuse	
	Addiction Research Center	

(WORKSHOP ONLY)

Name _____

BRAIN NICOTINIC RECEPTOR MEDIATION OF TOLERANCE AND DEPENDENCE

Organizer: Glen R. Van Loon
Participants: L. Abood, K. Kellar, J. Henningfield

Classic concepts of the mode of action of nicotine have been challenged in recent years. Several observations make difficult to reconcile the hypothesis that nicotine acts only as a cholinergic agonist. No simple relationship exists between the receptor affinity of a drug and its ability to antagonize the psychotropic action of nicotine. The nicotinic receptor contains multiple ligand binding sites and the different receptor subunits may mediate discrete nicotinic functions, including stimulant, reinforcing, tolerance and dependence effects. The neuropharmacologic mechanisms underlying these functions may be inherent in the complex nicotinic receptor and the multiplicity of binding sites or may relate to binding at different discrete neuroanatomical locations or may involve mediation by other neurotransmitter systems such as opioid peptide neuronal systems which display the characteristics of tolerance and dependence.